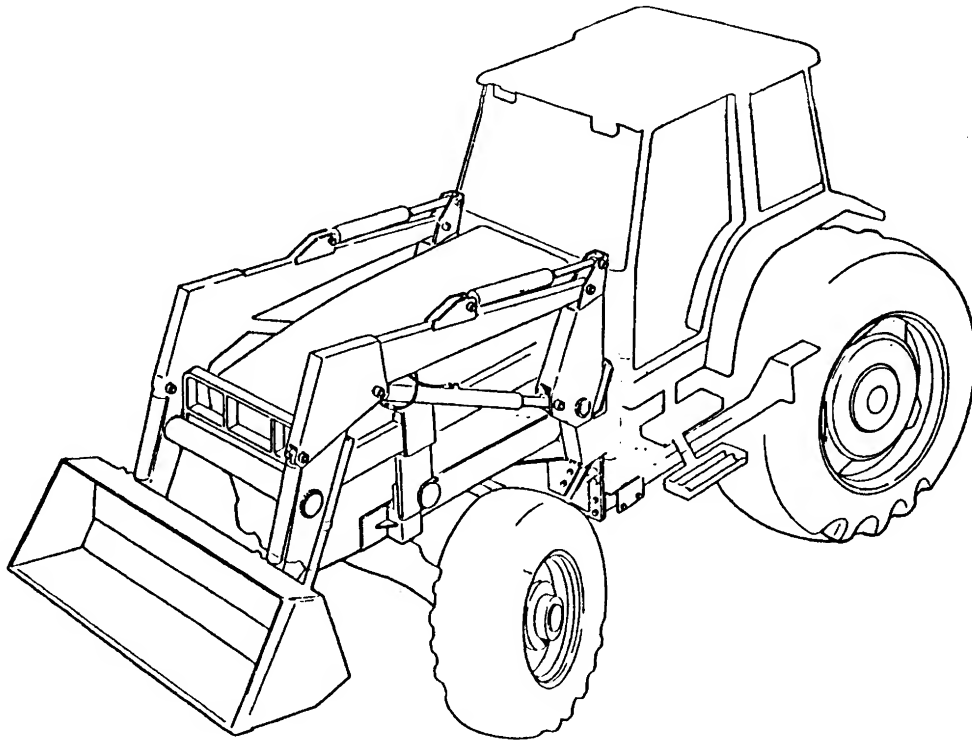


ALLIED

595 LOADER



**MODELS 595, S595, 595HSL, S595HSL
595TSL, & S595TSL**

(HSL Model shown)

Assembly, Operator's and Parts Manual

Part No. P3639

07/99

WARRANTY REGISTRATION AND POLICY

Buhler Manufacturing products are warranted for a period of twelve (12) months from original date of purchase, by original purchaser, to be free from defects in material and workmanship under correct, normal agricultural use and proper applications.

Buhler Manufacturing's obligations under this warranty shall be limited to the repair or exchange, at Buhler Manufacturing's option, of any Buhler Manufacturing product or part which proves to be defective as provided. Buhler Manufacturing reserves the right to either inspect the product at the buyer's location or have it returned to the factory for inspection.

The above warranty does not extend to goods damaged or subject to accident, abuse or misuse after shipment from Buhler Manufacturing's factory, nor to goods altered or repaired by anyone other than an authorized Buhler Manufacturing representative.

Buhler Manufacturing makes no Express Warranties other than those which are specifically described. Any description of goods, including any references and specifications in catalogues, circulars and other written material published is for the sole purpose of identifying goods and shall conform to such descriptions. Any sample or model is for illustrative purposes only and does not create an Express Warranty that the goods conform to sample or model shown.

The purchaser is solely responsible for determining suitability of goods sold. This warranty is expressly in lieu of all other warranties expressed or implied. Buhler Manufacturing will in no event be liable for any incidental or consequential damages whatsoever, nor for any sum in excess of the price received for the goods for which liability is claimed.

WARRANTY CLAIMS:

Warranty requests must be prepared on Buhler Manufacturing Warranty Claim Forms with all requested information properly completed. Warranty Claims must be submitted within a thirty (30) day period from date of failure repair.

WARRANTY LABOR:

Any labor subject to warranty **must** be authorized by Buhler Manufacturing. The labor rate for replacing defective parts, where applicable, will be credited at a rate determined by the Company, Buhler Manufacturing.

IMPORTANT FACTS:

Buckets and Bucket Tines Carry No Warranty
Bent Spears Carry No Warranty
Snowblower Fan Shafts Carry No Warranty
Mower Blades Carry No Warranty
Portable Auger Parts Have Two (2) Year Warranty
Loader Parts Have Two (2) Year Warranty

595
Hydraulic Farm Loader

Operator's Manual
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IMPORTANT

**PLEASE READ AND UNDERSTAND THIS MANUAL
BEFORE OPERATING LOADER**

Loader Specification Sheet

(PER ASAE S301.2)

MODEL NUMBER: 595

MOUNTING HEIGHT: 36.0" (NOMINAL)

TYPICAL RANGE: 33.0" TO 39.0"

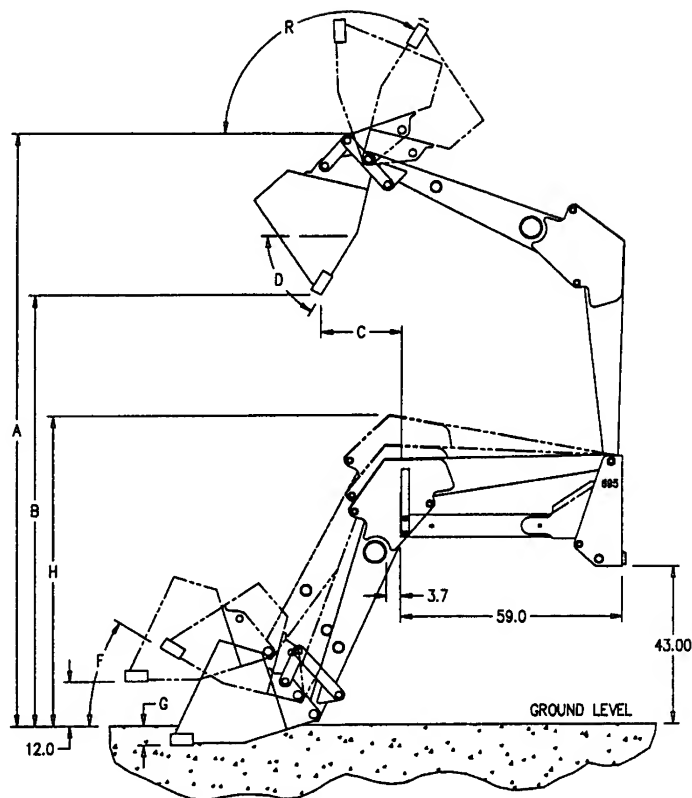
CYLINDER SPECIFICATIONS [INCHES]

CYLINDER	BORE	ROD	STROKE
BUCKET	3.00	1.50	20.63
LIFTING	3.00	1.75	28.50
LEVELING	3.50	1.75	12.00
TSL BKT	3.00	1.75	22.00

- A) MAXIMUM LIFT HEIGHT (FULL HEIGHT): 139.4" (11.6')
 B) CLEARANCE WITH BUCKET DUMPED (FULL HEIGHT): 108.3" (9.0')
 C) REACH AT FULL HEIGHT: 32"
 D) MAXIMUM DUMP ANGLE (FULL HEIGHT): 41.0°
 D) TSL MAX DUMP ANGLE: 65.0°
 D1) TSL DUMP ANGLE AT GROUND: 90°
 F) BUCKET ROLLBACK ANGLE (GROUND): 18°
 F1) TSL BUCKET ROLLBACK ANGLE: 35°
 G) DIGGING DEPTH: 5.5'
 H) OVERALL HEIGHT IN CARRY POSITION: 79.0" (6.6')
 R) ROLLBACK ANGLE AT FULL HEIGHT: 101.0°
 R) TSL BUCKET ROLLBACK ANGLE AT FULL LIFT: 49.5°
 ESTIMATED BREAKOUT FORCE: 4205 LBS
 ESTIMATED LIFT CAPACITY: 2430 LBS




NOTES:




- 1) CALCULATED VALUES ASSUME 2500 PSI CYLINDER PRESSURE
- 2) BREAKOUT FORCE ESTIMATED AS PER ASAE S301.2-4.1.2.
(NET PAYLOAD APPLIED AT CUTTING EDGE)
- 3) LIFT CAPACITY ESTIMATED AS PER ASAE S301.2-4.1.1.
(PAYLOAD APPLIED AT BUCKET MIDPOINT)
- 4) ALL PINS ARE 1.25 DIAMETER



Torque Specifications

Recommended Torque in Foot Pounds (ft-lbs) & Newton Meters (NM)*

Standard										
Bolt Diameter (Inches)		Wrench Size (Inches)	Bolt Head							
										
			Grade 2 (ft-lbs) (NM)		Grade 5 (ft-lbs) (NM)		Grade 8 (ft-lbs) (NM)			
0.250	1/4	7/16	6	7	8	11	12	16		
0.313	5/16	1/2	11	15	17	23	25	33		
0.375	3/8	9/16	20	27	31	42	44	60		
0.438	7/16	5/8	32	43	49	66	70	95		
0.500	1/2	3/4	49	66	76	103	106	144		
0.563	9/16	7/8	70	95	109	148	153	207		
0.625	5/8	15/16	97	131	150	203	212	287		
0.750	3/4	1 1/8	144	195	266	360	376	509		
0.875	7/8	1 5/16	166	225	430	583	606	821		
1.000	1	1 1/2	250	339	644	873	909	1232		
1.125	1 1/8	1 11/16	354	480	795	1077	1288	1745		
1.250	1 1/4	1 7/8	500	678	1120	1518	1817	2462		
1.375	1 3/8	2 1/16	655	887	1470	1992	2382	3228		
1.500	1 1/2	2 1/4	870	1179	1950	2642	3161	4283		

Metric									
Bolt Dia. (mm)	Wrench Size (mm)	Bolt Head							
									
		Class 4.6 (ft-lbs) (NM)		Class 8.8 (ft-lbs) (NM)		Class 9.8 (ft-lbs) (NM)			
8	13	7.3	10			21.1	29		
10	16	14.5	20			42	57		
12	18	25	34	74	100	73	99		
14	21	40	54	118	160	116	157		
16	24	62	84	167	226	181	245		
20	30	122	165	325	440				
22	33			443	600				
24	36	211	286	563	763				
27	41			821	1112				
30	46	418	566	1119	1516				

*Use 80% of the specified torque value for plated or lubricated fasteners.

Pre-delivery Check List

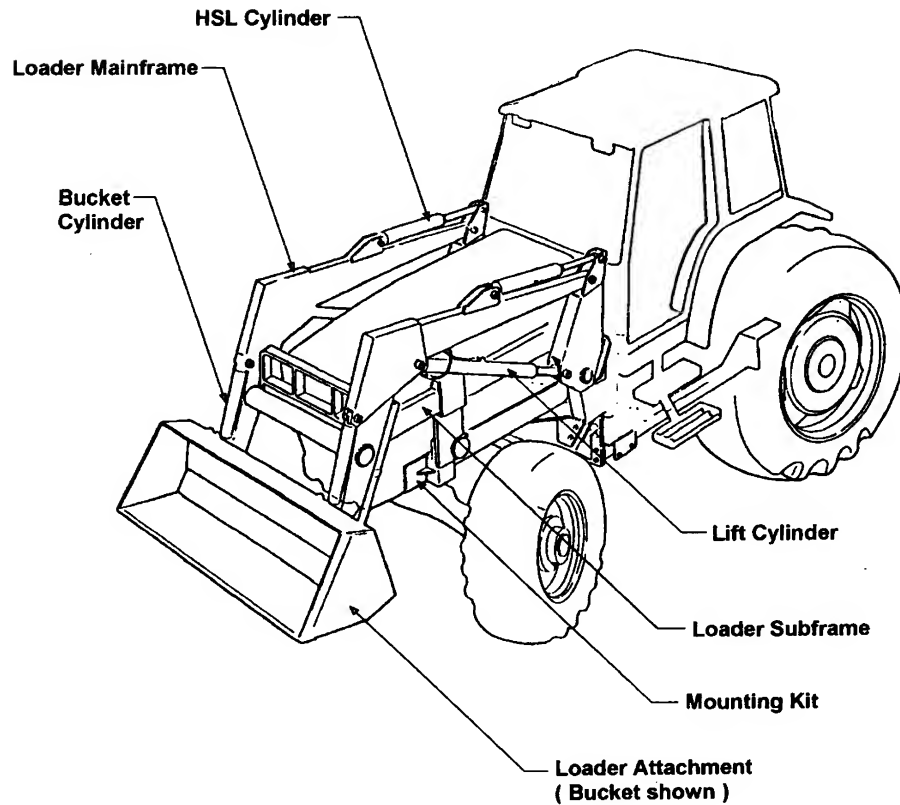
Before delivering this equipment please complete the following check list.

- ☐ 1. The loader has been installed using the appropriate mounting kit for the tractor and loader.
- ☐ 2. The hydraulic system installed is appropriate for the tractor and loader
- ☐ 3. The loader is properly installed.
- ☐ 4. All bolts are tightened to the torque specifications shown in the torque chart.
- ☐ 5. All safety decals are readable.
- ☐ 6. The loader has been tested and operates properly.
- ☐ 7. The operator's manual has been delivered to the owner who has been instructed on the safe and proper use of the loader.

Dealer's Signature _____

This check list is to remain in this Owner's Manual and is the responsibility of the dealer to complete it before delivery to the customer.

Loader Identification Diagram (HSL Model Shown)



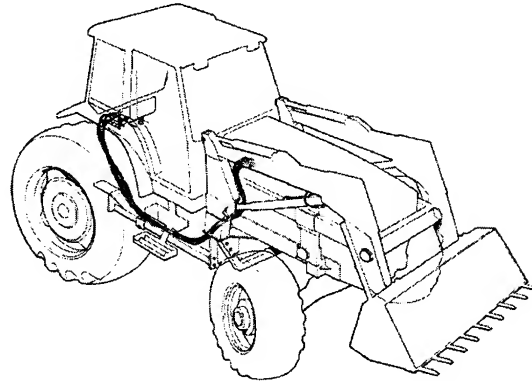
For further details refer to Loader Mainframe and Subframe diagrams.

Hydraulic (Hose Kit) Identification Diagrams

Hose Kit "A"

Loader Powered by the tractor remotes.

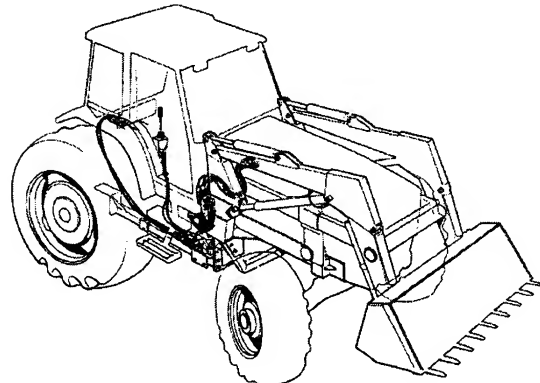
Consists of four hoses leading from loader tubing to tractor remote couplers



Hose Kit "B"

Loader operated by an external OC or CC valve that is powered from the tractor remotes

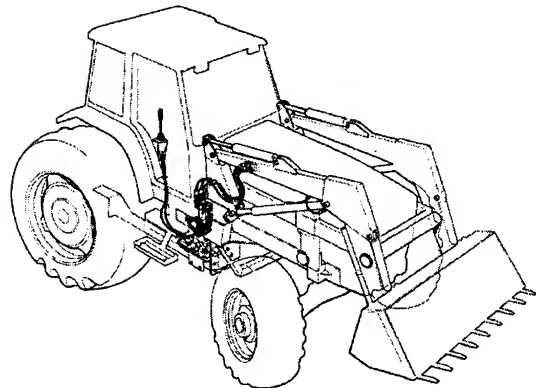
Consists of 4 hoses leading from loader tubing to external mounted valve and 2 hoses from valve to tractor couplers. Use the valve type shown with hose kit "B".



Hose Kit "C"

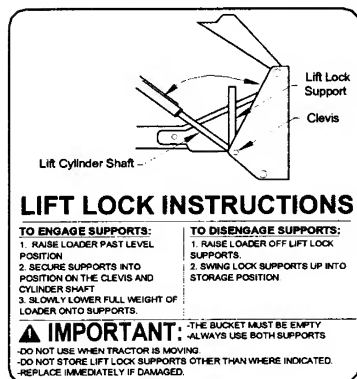
Loader operated by an external valve that is plumbed into the tractor hydraulic system.

Consists of 4 hoses leading from loader tubing to external mounted valve plus the necessary fittings, hoses and adapter blocks (if necessary) to tap into tractor hydraulic system. Use valve type shown with hose kit "C".

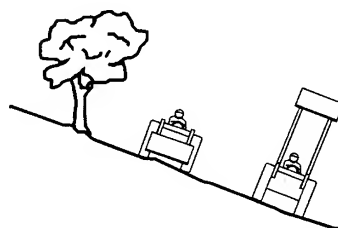


Safety

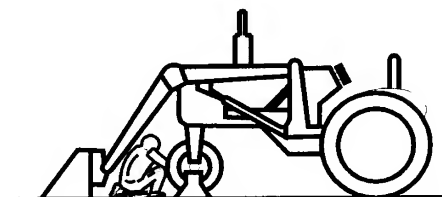
- Never work beneath raised loader unless it is securely supported. The following are instructions for the Lift Lock Supports;



- Space rear tires as recommended by tractor manufacturer. Maximize width for high lift applications.



- Do not pivot or turn tractor with bucket raised, except at a minimum speed. Always make allowance for length of loader when making turns.
- Never leave tractor unattended while the bucket is raised. Always lower bucket to the ground and shut off before leaving tractor seat.
- Do not walk under raised bucket.
- Never operate loader while operator is not seated in the driver's seat on the tractor.
- Keep tractor on solid ground. Loose fill, rocks and holes can be dangerous for loader operation or movement.
- Never operate a loader with frayed or damaged hoses or leaking fittings.
- Add ballast as required to ensure 25% of gross vehicle weight is transferred to the rear axle.
- Do not raise bucket to extreme heights while tractor is on an incline. Carry loader low for safety. Note in above illustration how load center moves out when bucket is raised on a slope. Be alert for terrain changes and adjust bucket accordingly. Keep bucket low, no more than one foot high, as long as possible.
- Note: A pivoting front axle acts like a three-wheeled tractor until the stops hit the axle.
- If lift cylinders are used to raise front wheels of tractor for service, place blocks under tractor before working around front end.


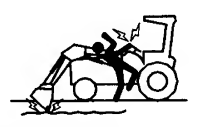


**THIS SAFETY ALERT SYMBOL MEANS:
ATTENTION!
BECOME ALERT!
YOUR SAFETY IS INVOLVED!**



Important Precautions

DANGER

ELECTROCUTION HAZARD

To prevent serious injury or death:

Stay away from power lines and cables.
Electrocution can occur with or without direct contact.

WARNING



FALLING HAZARD

To prevent serious injury or death:

Do not lift, carry or allow anyone to ride on or work from any portion of loader.

WARNING


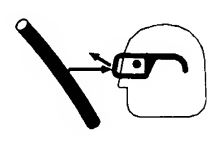


CRUSHING HAZARD

To prevent serious injury or death:

Do not handle round bales or other shiftable objects unless loader is equipped with an attachment designed for this purpose.
Do not handle loose loads that are not secured.
Do not lift load higher than necessary.

WARNING

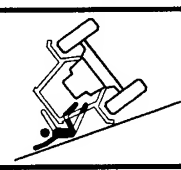



HIGH PRESSURE FLUID

To prevent serious injury or death:

Relieve pressure on system before repairing or adjusting or disconnecting.
Wear proper hand and eye protection when searching for leaks. Use wood or cardboard instead of hands.
Keep all components in good repair.
If hydraulic fluid penetrates skin, obtain medical treatment IMMEDIATELY.

WARNING



ROLL-OVER HAZARD

To prevent serious injury or death:

Move and turn tractor at low speed.
Carry load no higher than necessary to clear the ground when transporting.
Add wheel ballast or rear weight for stability.
Move wheels to widest possible settings to increase stability.
It is recommended the tractor be equipped with a rollover protective structure (ROPS).

WARNING



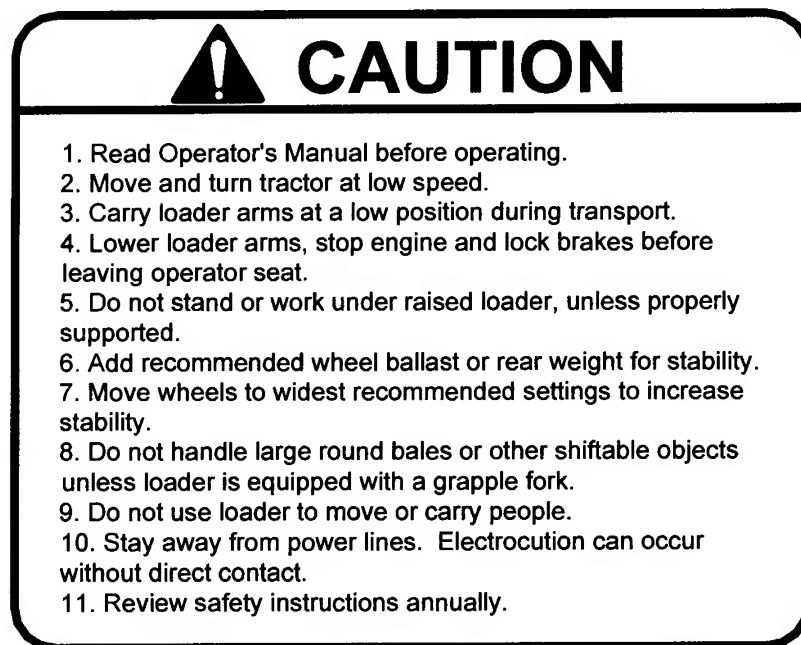
CRUSHING HAZARD

To prevent serious injury or death:

Do not allow bystanders in loader work area.
Lower loader to the ground before leaving seat.
Do not walk or work under raised loader. For servicing, refer to operator's manual.
Read and understand operator's manual before operating loader.

Safety Decals

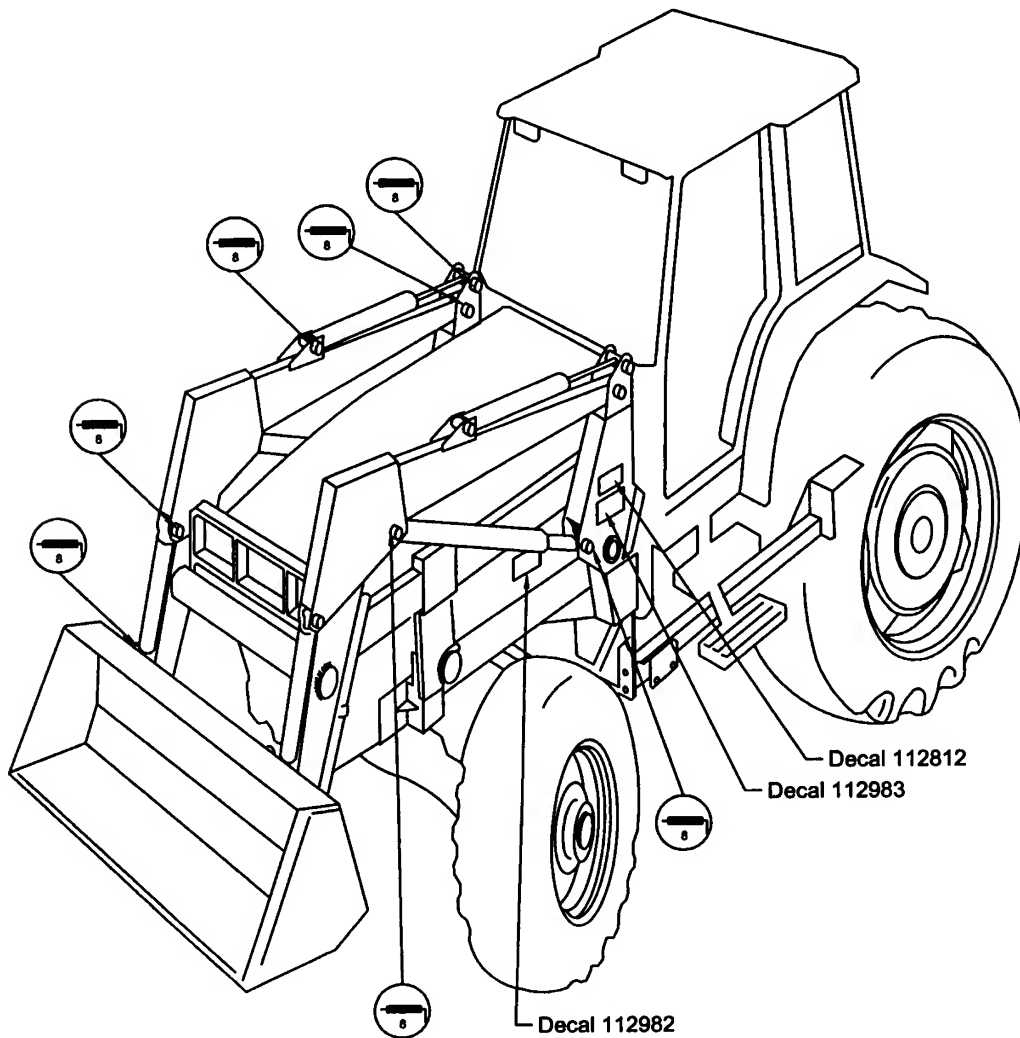
These decals are located as shown on the Decal Location diagram and the Sub-Frame Assembly diagram.



Lubrication and Decal Location Diagram

Lubricate tractor hydraulic unit as indicated in tractor Operator's Manual. Keep bushings on lift arm pivots and cylinders well lubricated. Use high-grade lithium grease every 8 hours of operation.

NOTE: Frequent greasing will prevent contaminants from migrating between the pins and bushings.



Symbol indicating grease after every 8 hours of operation

General Instructions and Information ~

As with any piece of equipment, the care with which your loader is operated and maintained will greatly affect its life and the safety of the people using it.

1. Keep all pivots well lubricated for longer bushing life. Inspect every 500 hours of operation for wear.
2. Periodically check all bolts for tightness. If any bolt is damaged, replace it with a bolt of equivalent grade or strength.
3. Follow the recommendations of the tractor manufacturer in regards to the quantity of oil used.
4. Check oil level frequently to ensure the system is full.
5. When making an oil check, be sure lift cylinders are retracted.
6. Before operating the loader, particularly if the loader is left standing for any length of time, check the hydraulic system and oil level.
7. When installing hydraulics, follow the circuit carefully. See hydraulic hook-up section and make sure the hoses do not contact any hot manifolds or sharp edges on tractor. After assembly, raise the loader slowly and check to make sure that the hoses do not bind in all positions.



CAUTION

The pressure of the relief and open center valves is set at the factory. Do not tamper with the setting, serious injury to the operator or damage to the loader or tractor hydraulics may occur. Warranty will be void if the loader is operated above recommended pressure.

9. When servicing any hydraulic components, care must be taken to prevent any foreign matter from entering the system.
10. Do not neglect oil leaks. Leaks affect loader operation, are dangerous and can result in personal injury or damage to the hydraulic system.
11. Never leave the cylinder shafts exposed when loader is not in use.
12. Worn or damaged components should be replaced as soon as possible with only the manufacturer's recommended component or equivalent.

Operation and Maintenance

GENERAL

Refer to tractor Operator's Manual for Operating information on the tractor's hydraulic system.

Hydraulic systems using auxiliary valves should have them located for easy reach from the tractor seat. Hoses should be connected in such a manner that pushing forward on valve handles lowers the boom or dumps the bucket.

CAUTION: Always connect boom hoses to float section.

Weight added to rear of tractor provides better traction and an easier, more efficient loader operation. Extra weight, along with widening the rear wheels, reduces the risk of roll-over.

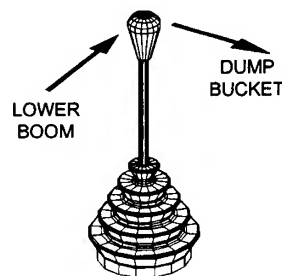
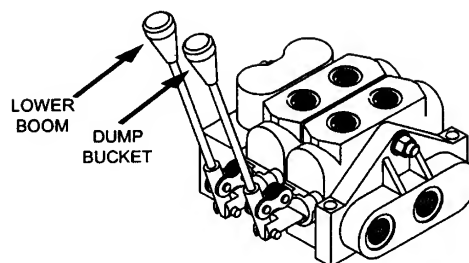


WARNING

The smaller the tractor is, the easier it will roll. We recommend that weight be added to rear tires with liquid or by the installation of rear wheel weights. Where additional weight is required, a counterweight box can be fabricated for tractors with three-point hitches.

Extra weight can also be added by the use of a heavy implement mounted to the three-point hitch.

A roll-over protective structure is also recommended.



In cold weather, operate the tractor's engine at idle speed until the hydraulic fluid is warmed up. High engine speed when the hydraulic fluid is cold will cause the pump to wear prematurely.

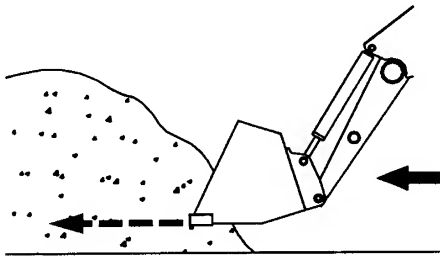
Under normal conditions, operate the tractor's engine at ½ throttle. Shift the tractor into a low gear before entering a pile of material to minimize strain on loader arms.

Operating Suggestions for Loading

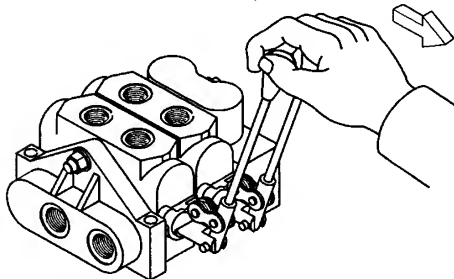
When handling heavy loads, be sure to lower lift arms slowly. This is known as feathering the hydraulic lever. If load is lowered too fast and stopped suddenly, excessive shock loads are created which can damage loader or tractor.

When loading bucket, drive straight into material. Attempting to turn tractor while loading bucket can cause damage to both the loader and tractor.

Come in level:



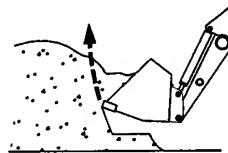
NOTE: Bottom surface of bucket is parallel to line on motion



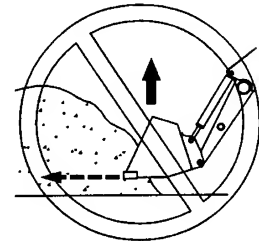
Work both levers back to direct pressure to both cylinders.

Combined action of lift and bucket cylinders increases loading efficiency.

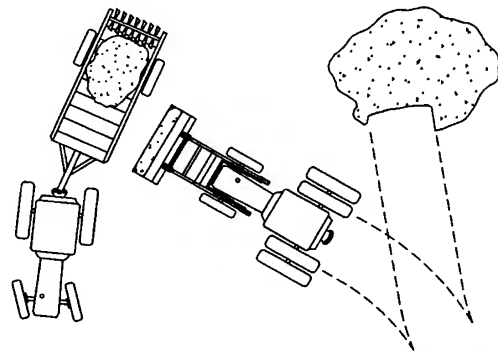
DO THIS!



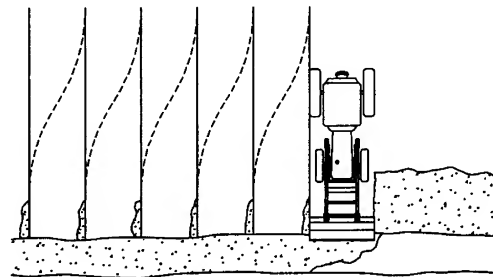
NOT THIS!



A straight bottom offers more resistance to lift.



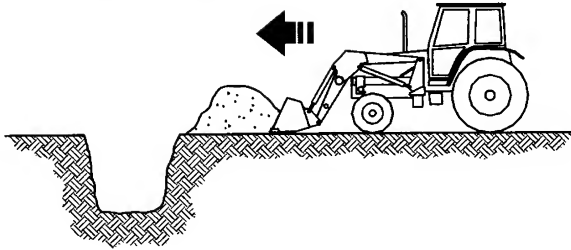
To increase loading efficiency, minimize angle of turn and length to run between pile and spreader.



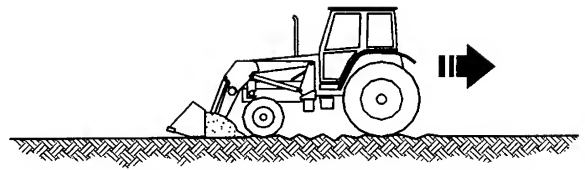
Leave material which drifts over side of bucket for final clean-up.

Operating Suggestions For Backfilling

DO THIS!

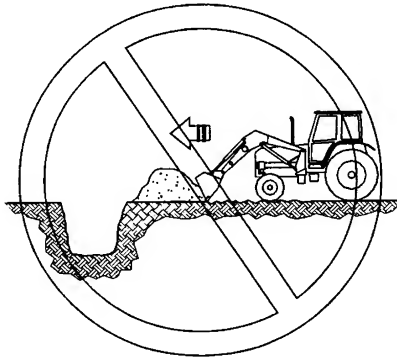


When backfilling approach pile with a flat bucket. Leave dirt in bucket. Dumping on each pass wastes time.



Backgrade work surface with a loaded bucket. Release all pressure on lift cylinders so full weight of bucket is scraping ground. Use heel of bucket.

NOT THIS!



WARNING!

**DO NOT USE LOADER
AS BATTERING RAM!**

SAFETY: FIRST, LAST, ALWAYS



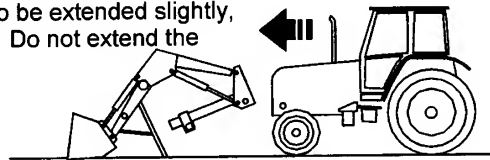
DO NOT use bucket in dumped position for bulldozing. This will only impose severe shock loading on the bucket cylinders and make it more difficult to maintain a level grade.

Attaching the Loader to Your Tractor

1. Position the tractor as centrally as possible and drive, using lowest gear possible, into the loader frame until hoses can be connected.
2. Couple up the hydraulic hose lines to the loader or tractor valve ensuring proper function (see Operator and Maintenance Section)

NOTE: When mounting the loader for the first time, slowly work the cylinders back and forth, so that most of the air is removed. Loosen the bolts on the hooks so that they can be moved. Also, check that the nuts in the rear of the subframes are in line with the holes.

3. On some tractors, the lift cylinders may have to be extended slightly, so that the subframes can clear the front axle. Do not extend the cylinders more than is required.

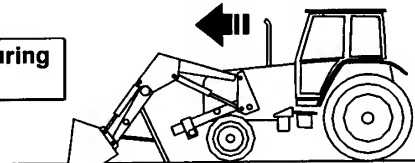


IMPORTANT! On self leveling loaders, the bucket will dump at the same time the loader is raised. Therefore, operate both hydraulic levers together.

4. Drive the tractor ahead until the subframe is past the front axle and the front hook is close to mounting boss.



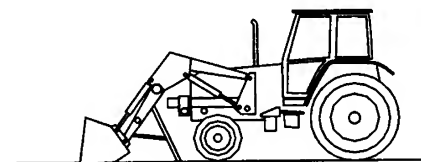
WARNING! Check front grill clearance during installation to avoid tractor damage.



5. Retract or extend the lift cylinders to line up the front hook with the mounting boss.

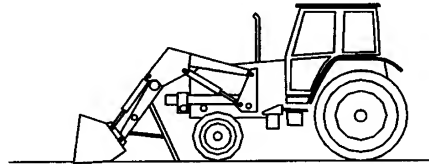


IMPORTANT! On self leveling loaders, the bucket will roll back at the same time the loader is lowered. Therefore, operate both hydraulic levers together.

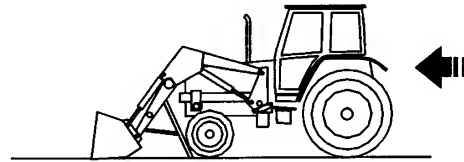


Attaching the Loader to Your Tractor (Continued)

6. When the hook is lined up, dump or roll back the bucket to lower or raise the subframe upright to align with the mounting boot.

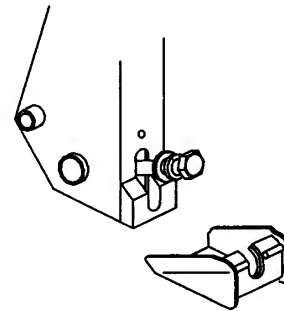


7. Continue to drive the tractor forward until the subframe uprights are seated in the boot.



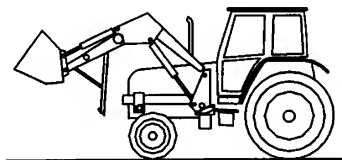
8. Secure the subframe uprights with the bolts and washers. Torque to 500 ft-lbs.

IMPORTANT: When mounting for the first time, the front hook bolts will have to be tightened after positioning the hook directly over the mounting boss (most rearward position).



9. Raise the loader and lock the support stand tubes into the up position.

NOTE: When mounting for the first time, raise the loader slowly and check to make sure that the hoses do not bind or become pinched in all positions. Work the loader and bucket up and down to work out all the air in the hydraulics. Check and refill the tractor's hydraulic system.



Removing the Loader from Your Tractor

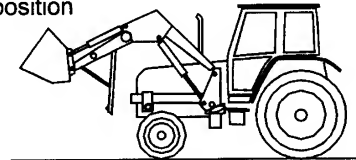


WARNING! When removing the loader, it must be fitted with a bucket or other suitable attachment to give the frame stability after removal. If this is not done, the frame will not remain standing.

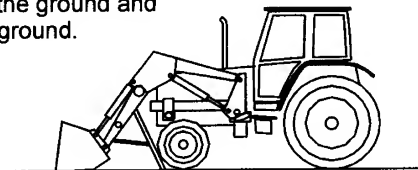


IMPORTANT! Always remove the loader on firm, level ground (away from children's play areas and high traffic areas). This makes attaching and removing much faster and easier. It also makes the free standing loader more stable.

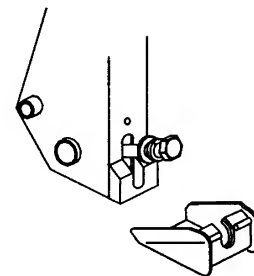
1. Raise the loader, lower support stand tubes and lock into position



2. Lower the loader until the stand tubes are firmly on the ground and then dump the bucket so that it is also firmly on the ground. There should be slight downward pressure.

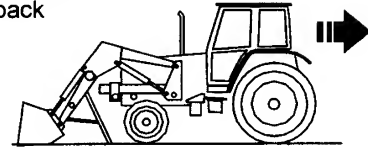


3. Loosen the bolts from the rear of the subframe boots and swing bolt up into lock position.



Removing the Loader from Your Tractor (Continued)

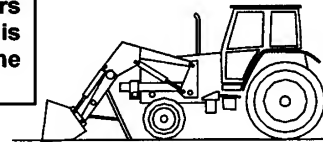
4. Roll back the bucket slightly and simultaneously extend or retract the lift cylinders to free hooks from spools. Then slowly back up the tractor.



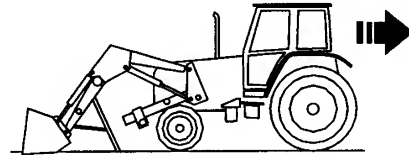
5. Once the subframe is clear of the boot and the hook is clear of the mounting boss, roll back the bucket all the way. This raises the rear uprights of the loader.



NOTE: On some mountings, the lift cylinders must be extended more while the tractor is backing up, so that the subframes clear the front axle.

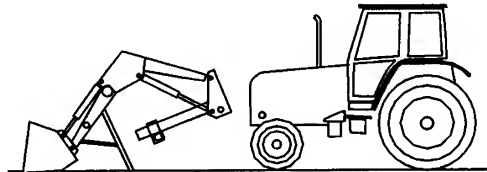


6. Continue backing up until the loader is clear.



CAUTION! Be sure the hoses **DO NOT** get pinched or catch on any frame members while backing up.

7. After the loader is clear, retract the lift cylinders to protect the shafts and disconnect the hydraulic lines at quick couplers.



Trouble Shooting

PROBLEM	POSSIBLE CAUSE	REMEDY
Loader slow and/or will not dump.	Quick couplers leaking.	Check connections and compatibility or replace.
	Hydraulic oil too heavy.	Change or replace filter.
	Oil filter plugged.	Clean or replace filter.
	Hydraulic pump worn.	Repair or replace pump.
	Oil line restricted or leaking.	Check all hoses and tubes for leaks, damage or restrictions. Replace damaged or restricted hoses or tube lines.
Loader chatters or vibrates when raising and lowering.	Control valve does not shift properly.	Inspect, clean, repair or replace valve.
	Air in hydraulic system.	Cycle lift cylinders and bucket cylinders several times to free system of air.
	Cylinder leaks internally.	Replace seals.
	Faulty valve.	Repair or replace valve.
	Air leak in pump inlet line.	Check, tighten or replace inlet line.
Excessive movement at pivots	Air in hydraulic system.	Cycle lift cylinders and bucket cylinders.
	Oil level too low.	Add oil as required.
Pump noisy	Worn bushings and/or pins.	Replace bushings and/or pins.
Oil leaks.	Inlet line restricted or leaking.	Check for air leaks, restrictions or collapsed hose. Tighten or replace hose. Clean filter if necessary.
	Oil level too low.	Add oil as required.
	Pump worn or damaged.	Repair or replace pump.
	Damaged fittings or hoses.	Replace damaged parts.
	Loose connections.	Tighten fittings.
Insufficient lift capacity	Worn or damaged O-ring wiper seal in cylinder rod end.	Install a seal repair kit.
	Worn or damaged O-rings in valve.	Install an O-ring repair kit.
	Improper hydraulic pump operation.	Repair or replace pump.
	Load is greater than boom lift capacity.	Check loader specifications.
	Internal boom cylinder leakage.	Replace any worn parts and install a seal repair kit.
Slow leakdown.	Improper hydraulic valve operation.	Repair or replace valve.
	Worn control valve.	Have authorized dealer replace seals.
Excessive wear on bottom oil bucket and wear pads.	Worn cylinder piston seals.	Have authorized dealer replace seals.
	Float position not used while operating loader.	Use float position provided on valve.
Hydraulic cylinders inoperative.	Hose from control valve improperly connected.	Refer to plumbing diagrams.
Pump operating continually on closed center tractor hydraulic system.	Tractor control valve relief stuck open.	See your tractor manual for proper adjustment or Loader dealer for loader valve. (3000 PSI is maximum pressure relief setting recommended.)
	Hydraulic control valve set too low.	Adjust valve in accordance with manual.
Loader lift and bucket tilt controls do not work according to decal.	Hoses improperly connected.	Refer to plumbing diagrams and correct hose connections.
	Open center control valve on closed center tractor.	Replace relief valve with closed center plug and plug the power beyond adapter on valve.
Tractor loads/pump squeals	Closed center control valve on open center tractor.	Install open center plug on optional valve. Replace closed center plug with relief and install short plug in place of power beyond adapter.

General Notes and Instructions to the Operator Regarding ALLIED HSL Loader Operations

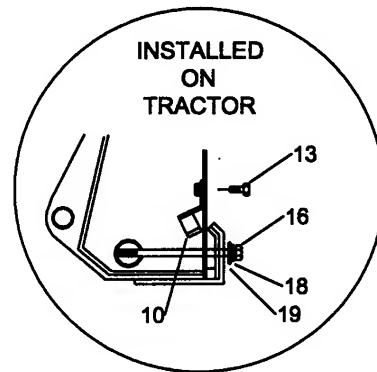
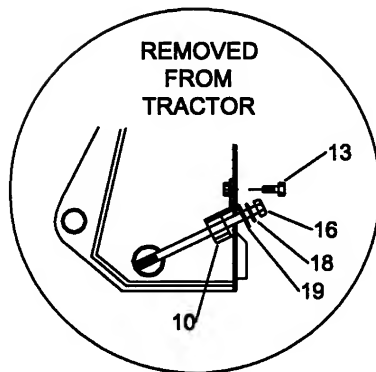
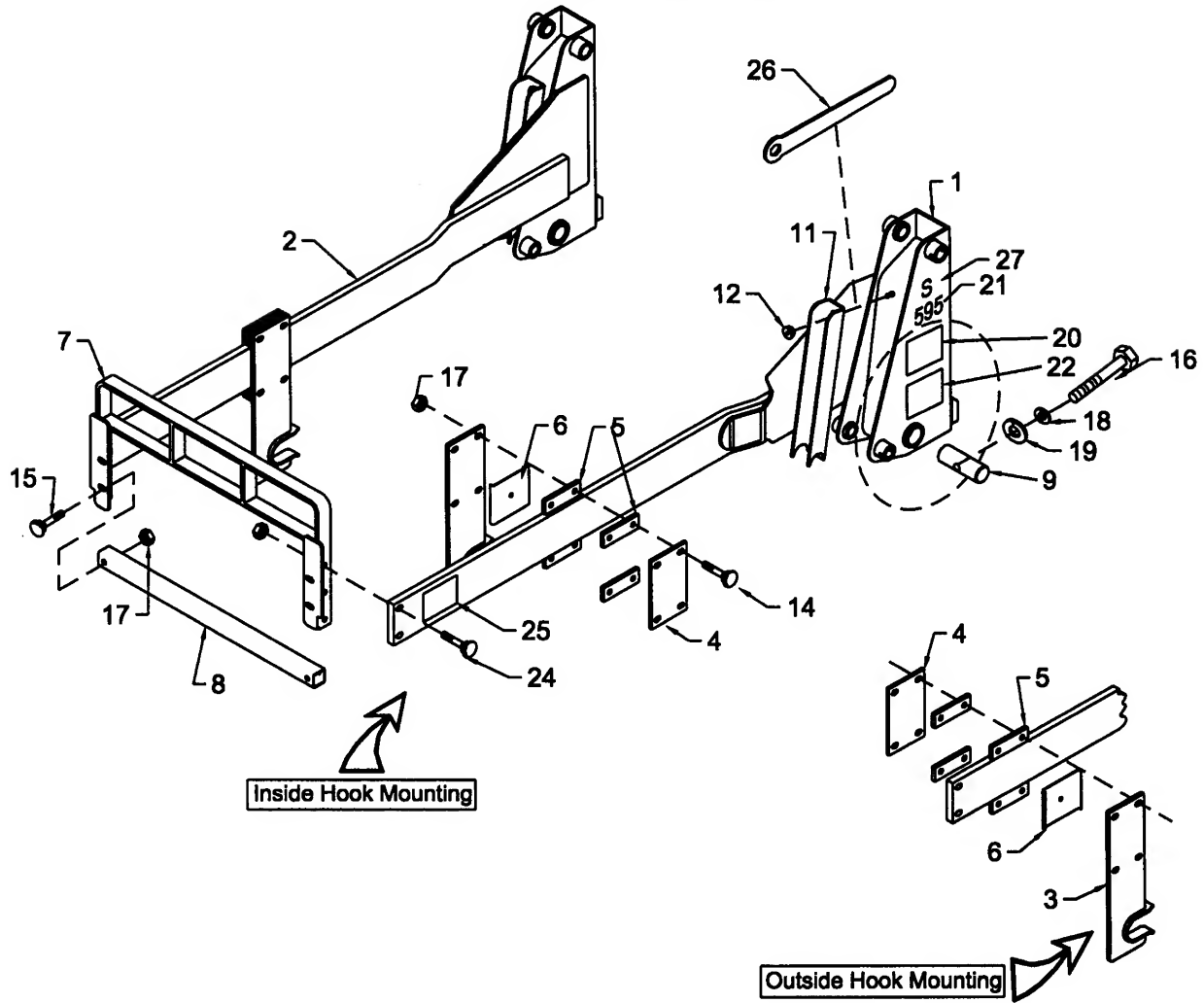
1. The *hydraulic self-leveling system* (HSL) utilizes two metering cylinders which displace oil into or out of the bucket cylinders as the loader is raised or lowered. The cylinder volumes and geometry's are carefully matched for each loader model to provide the correct amount of oil to keep the bucket level after it is initially leveled.
2. The HSL system incorporates two relief valves which are only utilized if the bucket cylinders are at either end of the stroke. ***If the loader is raised with the bucket fully dumped***, oil will be bypassed at high pressure into the lower side of the lift cylinder circuit. ***If the loader is lowered with the bucket fully rolled back***, oil will be bypassed at high pressure into the raised side of the lift cylinder circuit. Note that these two conditions are likely to occur only intermittently, and although the pump will be forced to supply oil at a higher pressure no damage to the loader components will occur. It is, however, recommended to avoid the above situations and keep the bucket somewhat level while raising or lowering the loader for smoother operation.
3. Note that the large volume (piston side) of the leveling cylinders is connected to the large volume of the bucket cylinders, and the small volume (rod side) is connected between the two sets of cylinders. The effect of this configuration is to create a breakout force "boost" if the bucket cylinders are pressurized toward the rollback position during breakout.
4. The opposite effect of the above situation is that the loader will have poor lift capacity if lifting with the bucket cylinders pressurized in the dumped position. This is, however, a very unlikely occurrence (lifting a load with bucket fully dumped).
5. The cartridge style relief valves are factory set at 2,000 psi cracking pressure and are capable of bypassing 15-20 GPM. If loader lock-up should occur due to a low tractor relief setting, higher inlet flows or return line restrictions, the relief valve setting may be bucket off slightly until the lock-up condition is overcome (as described in note 2 above).
6. **CAUTION:** Never utilize the leveling cylinders to raise the loader. This could occur if the lift cylinders are placed in float while the bucket cylinders are held pressurized in the retracted position. If the loader should rise, pressurize the lift cylinders to lower it; otherwise a rapid drop may occur when the bucket cylinders are extended. Note that this situation is unlikely to occur during normal loader operation and is possible only with a lightly loaded bucket.

General Notes and Instructions to the Operator Regarding ALLIED TSL Loader Operations

1. The *true self levelling system* (TSL) utilizes mechanical linkages to maintain bucket level while raising and lowering. The pivot plate weldment, levelling tubes and linkages have been developed to ensure that the bucket remains at the same position throughout its range of motion. This feature is standard with 2.50" and 3.00" diameter bucket cylinders.
2. The TSL system incorporates a relief and anticavitation manifold to provide extra dump at ground and rollback at full lift height. This feature is available on 3.00" bucket cylinders only. **If the loader is raised with the bucket fully dumped**, oil from the bucket piston side will be bypassed at high pressure to the bucket shaft side and the lift shaft side as the quick attach contacts the dump stop. **If the loader is lowered with the bucket fully rolled back**, oil from the bucket shaft side will be bypassed at high pressure to the bucket piston side and makeup will be provided by the lift piston side as the quick attach contact the rollback stop. Note that these two conditions are likely to occur intermittently and although the pump will be forced to supply oil at a higher pressure, no damage to the loader components will occur. It is, however, recommended to avoid the above situations and keep the bucket somewhat level while raising or lowering the loader for smoother operation.
3. The extra bucket stroke length allows for the bucket to be dumped to approximately 90 degrees at ground. This allows for bucket assist when traction is minimal. If the loader is raised from this position, the bucket will retract as the quick attach contacts the dump stop and the circuit goes through relief as described in note 2.
4. Extra bucket retraction allows for the bucket to be rolled back as the loader raises. The TSL feature maintains the bucket level, but as required the bucket can be manually rolled back approximately 20 degrees to allow for increased bucket capacity. If the loader is lowered from this position, the bucket will extend as the quick attach contacts the rollback stop and the circuit goes through relief as described in note 2.
5. The relief valve is factory set at 3250 PSI cracking pressure and is capable of bypassing 10-15 GPM. If loader lock-up should occur due to a low tractor relief setting, higher inlet flows or return line restrictions, the relief valve may be backed off slightly until the lock-up condition is overcome (counterclockwise turn of set-screw). Contact the factory for further instructions.

Notes

595 Sub Frame Assembly



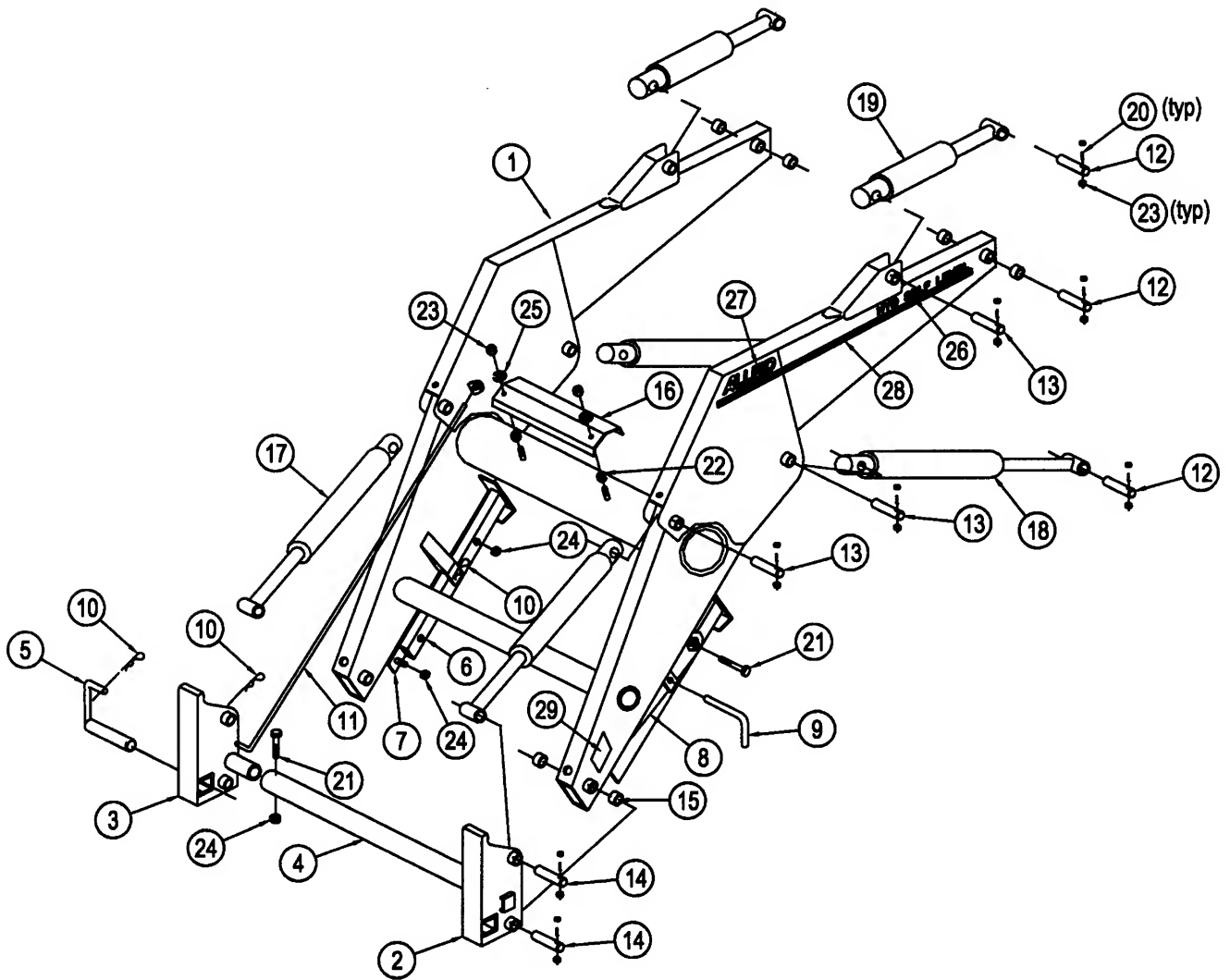
595, S595, 595 HSL, S595 HSL, 595 TSL, & S595 TSL Sub Frame Parts Table

Item	Part No.	Description	Regular Quantity	HSL/TSL Quantity	S595 Quantity	S595 HSL/TSL Quantity
1	31423	595 Sub Frame Weldment Left	1	-	-	-
2	31424	595 Sub Frame Weldment Right	1	-	-	-
1	31425	595 HSL Sub Frame Weldment Left	-	1	-	-
2	31426	595 HSL Sub Frame Weldment Right	-	1	-	-
1	31437	595 S Sub Frame Weldment Right	-	-	1	-
2	31438	595 S Sub Frame Weldment Left	-	-	1	-
1	31439	S595 HSL Sub Frame Weldment Left	-	-	-	1
2	31440	S595 HSL Sub Frame Weldment Right	-	-	-	1
3	110959	Hook Weldment	2	2	2	2
4	112747	Plate Clamp	2	2	2	2
5	112746	Spacer Block	4	4	4	4
6	112748	Shim	2	2	2	2
7	112663	Cross Member Weldment	1	1	1	1
8	112668	Tube Cross Member	1	1	1	1
9	112642	Shaft Pivot 1.75 DIA X 5.50 Long	2	2	2	2
10	113281	Bolt Retainer Weldment	2	2	2	2
11	110887	Loader Lift Lock Weldment	2	2	2	2
12	812717	Grommet 0.375 ID X 1.00 OD X .13	2	2	2	2
13	812026	Bolt Hex 0.313nc X 1.00 gr5 pl	2	2	2	2
14	812944	Bolt Car. 0.625nc X 3.00 gr5 pl	8	8	8	8
15	84127	Bolt Car. 0.625nc X 3.50 gr5 pl	2	2	2	2
16	812939	Bolt Hex 0.875nc X 10.00 gr8 pl	2	2	2	2
17	81967	Nut Lock (nylon) 0.625nc grB pl	14	14	14	14
18	81723	Washer Lock 0.875 pl	2	2	2	2
19	112730	Washer Boot	2	2	2	2
20	112812	*Decal General Caution	2	2	2	2
21	113228	*Decal - 595 X 1.40	2	2	2	2
22	112983	*Decal - Warning Overhead Hazard	2	2	2	2
23	112982	*Decal - Lift Lock Instruction	2	2	2	2
24	812882	Bolt Car. 0.625nc X 2.50 gr5 pl	4	4	4	4
25	113474	*Decal - Cross Member Caution	2	2	2	2
26	24329	Mounting Wrench (for 0.875 bolt)	-	1	1	1
27	112615	*Decal - S x 1.40	-	-	1	1

*Part of decal replacement kit X1256

595, S595, 595 HSL, S595 HSL

Main Frame Assembly (HSL Model Shown)



595, S595, 595 HSL, S595 HSL

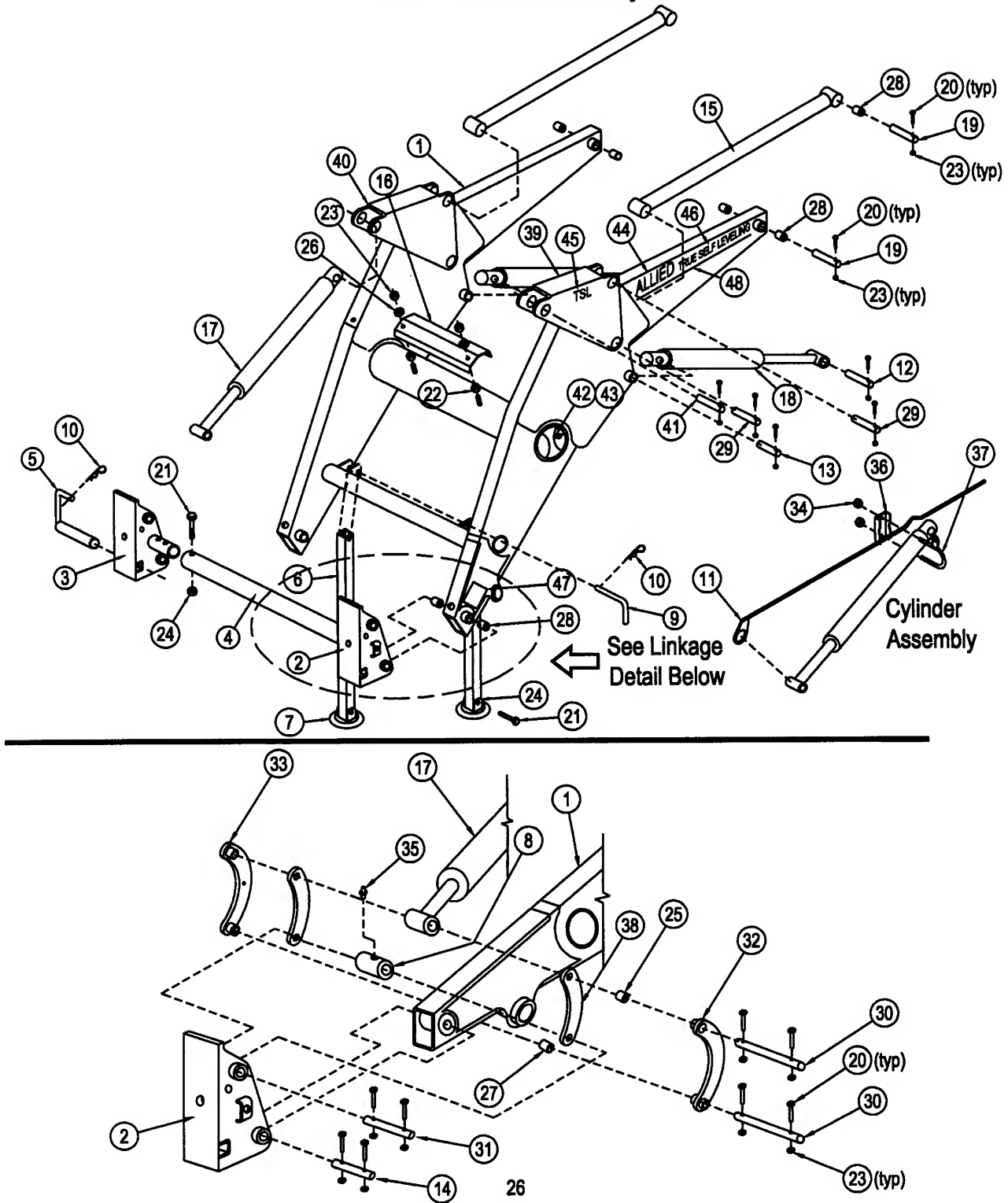
Main Frame Parts Table

Item	Part No.	Description	595	595HSL	595 S	S595 HSL
1	31427	595 Main Frame Weldment	1	-	-	-
1	31428	595 S Main Frame Weldment	-	-	1	-
1	31429	S595 HSL Main Frame Weldment	-	-	-	1
1	31430	595 HSL Main Frame Weldment	-	1	-	-
2	24296	Quick Attach Weldment Left	1	1	1	1
3	24297	Quick Attach Weldment Right	1	1	1	1
4	112798	Tube Cross Qtach	2	1	1	1
5	108827	Pin Weldment	2	2	2	2
6	111231	Stand Weldment	2	2	2	2
7	113114	Strap Stand	2	2	2	2
8	24329	Wrench Mounting	1	1	1	1
9	110907	Pin 0.625 Dia. Stand	2	2	2	2
10	12779	Hair Pin Clip #9 Western Wire	5	5	5	5
11	113109	Levelling Rod	1	1	1	1
12	112954	Pin 1.25 Dia. x 6.75 Long	4	6	4	6
13	112955	Pin 1.25 Dia. x 5.00 Long	4	6	4	6
14	112800	Pin Qtach	4	4	4	4
15	113766	Bushing 1.25 ID x 1.50 OD x 1.375 Long	8	8	8	8
16	24242	Tube Cover	1	1	1	1
17	24407	3.0 Dia. x 20.63 Bucket Cylinder	2	2	2	2
18	24408	3.0 Dia. x 20.50 Lift Cylinder	2	2	2	2
19	24319	3.5 Dia. x 12.00 Leveling Cylinder	-	2	-	2
20	81581	Bolt Hex 0.375nc x 2.50 gr5 pl	16	20	16	20
21	81669	Bolt Hex 0.625nc x 3.50 gr5 pl	4	4	4	4
22	81592	Nut Hex 0.375nc gr2 pl	4	4	4	4
23	81344	Nut Lock (nylon) 0.375nc grB pl	20	24	20	24
24	81967	Nut Lock (nylon) 0.625nc grB pl	6	6	6	6
25	81570	Washer Flat Std. 0.375 hs pl	4	4	4	4
26	23842	*Decal - Hyd. Self Level x 0.75	-	2	-	2
27	813356	*Decal - Buhler Allied x 1.75	2	2	2	2
28	52281-000	*Bright Orange Scotchcal #72368	10ft	10ft	10ft	10ft
29	113488	*Decal - Quick Attach Instruction	2	2	2	2

*Part of decal replacement kit X 1080

595 TSL, S595 TSL

Main Frame Assembly

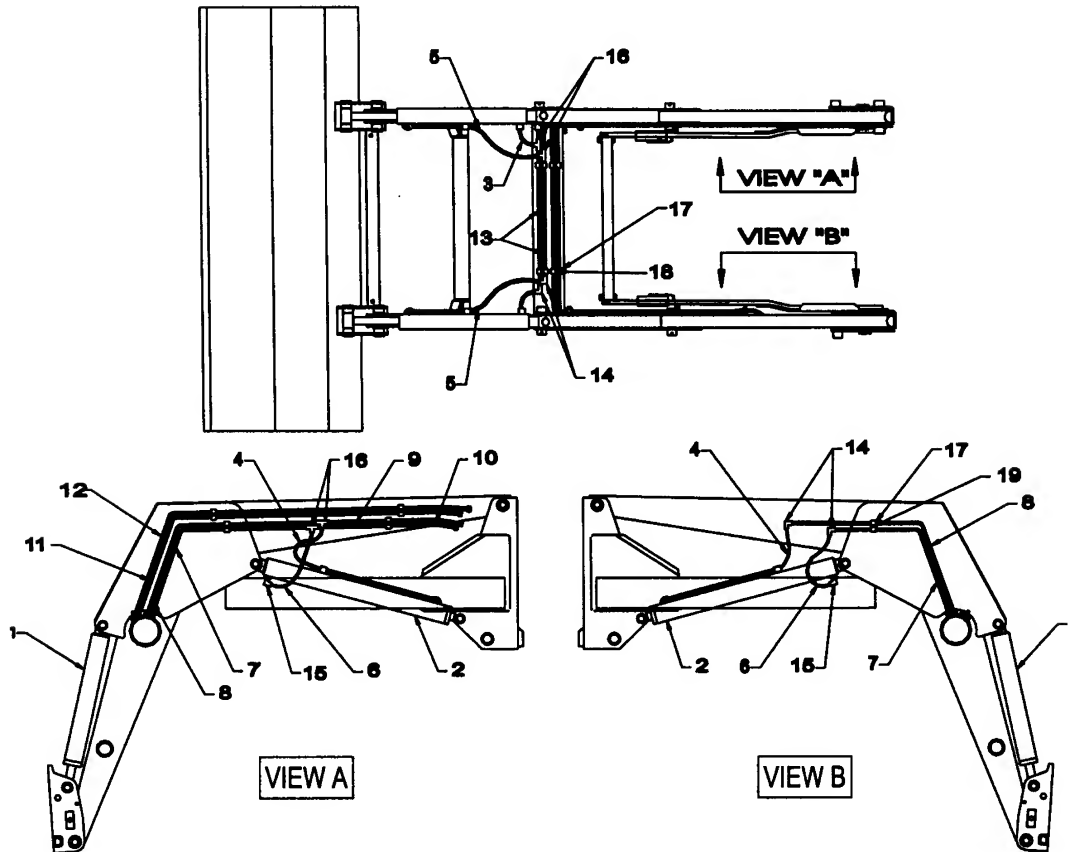


595 TSL, S595 TSL

Main Frame Parts Table

Item	Part No.	Description	2.5 DIA. Lift Cyl.		3.0 DIA. Lift Cyl.	
			595 TSL	S595 TSL	595 TSL	S595 TSL
1	24729	595 TSL Mainframe 3.0 DIA. Lift	-	-	1	-
1	24737	S595 TSL Mainframe 3.0 DIA. Lift	-	-	-	1
1	24771	595 TSL Mainframe 2.5 DIA. Lift	1	-	-	-
1	24772	S595 TSL Mainframe 2.5 DIA. Lift	-	1	-	-
2	24717	Quick Attach Left	1	1	1	1
3	24716	Quick Attach Right	1	1	1	1
4	112798	Cross Tube	1	1	1	1
5	108827	Pin Weldment	2	2	2	2
6	114296	Stand Tube	2	2	2	2
7	114303	Stand foot	2	2	2	2
8	113690	Link Spacer	2	2	2	2
9	110907	Stand Pin 0.625 diameter	2	2	2	2
10	12779	Hair Pin Clip	4	4	4	4
11	114186	Levelling Rod	1	1	1	1
12	112954	Pin 1.25 X 6.75 LG	2	2	2	2
13	112955	Pin 1.25 DIA X 5.00 LG	2	2	2	2
14	112800	Pin 1.25 DIA X 6.13 LG	2	2	2	2
15	114181	Levelling Tube	2	2	2	2
16	24242	Cross Tube Cover	1	1	1	1
17		Cylinder Bucket				
18		Cylinder Lift				
19	114252	Pin 1.25 DIA X 6.75 lg	4	4	4	4
20	81581	Hex Bolt 0.375 DIA X 2.5 LG	32	32	32	32
21	81669	Hex Bolt 0.625 DIA X 3.5	4	4	4	4
22	81592	Hex Nut 0.375 DIA	4	4	4	4
23	81344	Locknut 0.375 DIA	41	41	41	41
24	81967	Locknut 0.625 DIA	4	4	4	4
25	113691	Bushing 1.25 I.D. X 1.63 O.D x 0.75" lg	8	8	8	8
26	81570	Flat Washer 0.375 DIA	4	4	4	4
27	113570	Bushing 1.25 I.D. X 1.63 O.D. x 1.88" lg	4	4	4	4
28	113766	Bushing 1.25 I.D. x 1.50 O.D. x 1.38" lg	20	20	20	20
29	114104	Pin 1.25 DIA X 7.48	4	4	4	4
30	113697	Pin 1.25 DIA X 8.63 LG	4	4	4	4
31	113154	Pin 1.25 DIA X 7.63 LG	2	2	2	2
32	114119	Link Weldment Left	2	2	2	2
33	114120	Link Weldment Right	2	2	2	2
34	81966	Locknut 0.50 DIA	2	2	2	2
35	84583	Grease Fitting 1/8 NPT Straight	2	2	2	2
36	FNH114039	Bolt Plate	1	1	1	1
37a	114465	Rod Guide	1	1	0	0
37b	FNH114039	Rod Guide	0	0	1	1
38	114097	Link Assembly 11.25	4	4	4	4
39	114101	Pivot Plate Left	1	1	1	1
40	113998	Pivot Plate Right	1	1	1	1
41	113995	Pin 1.25 DIA X 7.13 LG	2	2	2	2
42	813228	1/2" Wing nut (pl)	2	2	2	2
43	81637	1/2" Lock washer (Pl)	2	2	2	2
44	813356	Decal - Buhler Allied X 1.75	2	2	2	2
45	114132	Decal - TSL X 1.75	2	2	2	2
46	813358	Decal - True Self Levelling	2	2	2	2
47	113488	Decal - Quick Attach Instruction	2	2	2	2
48	52281-000	Bright Orange Scotchcal #72368	10ft	10ft	10ft	10ft

595, S595 **Hydraulic Plumbing Diagram**

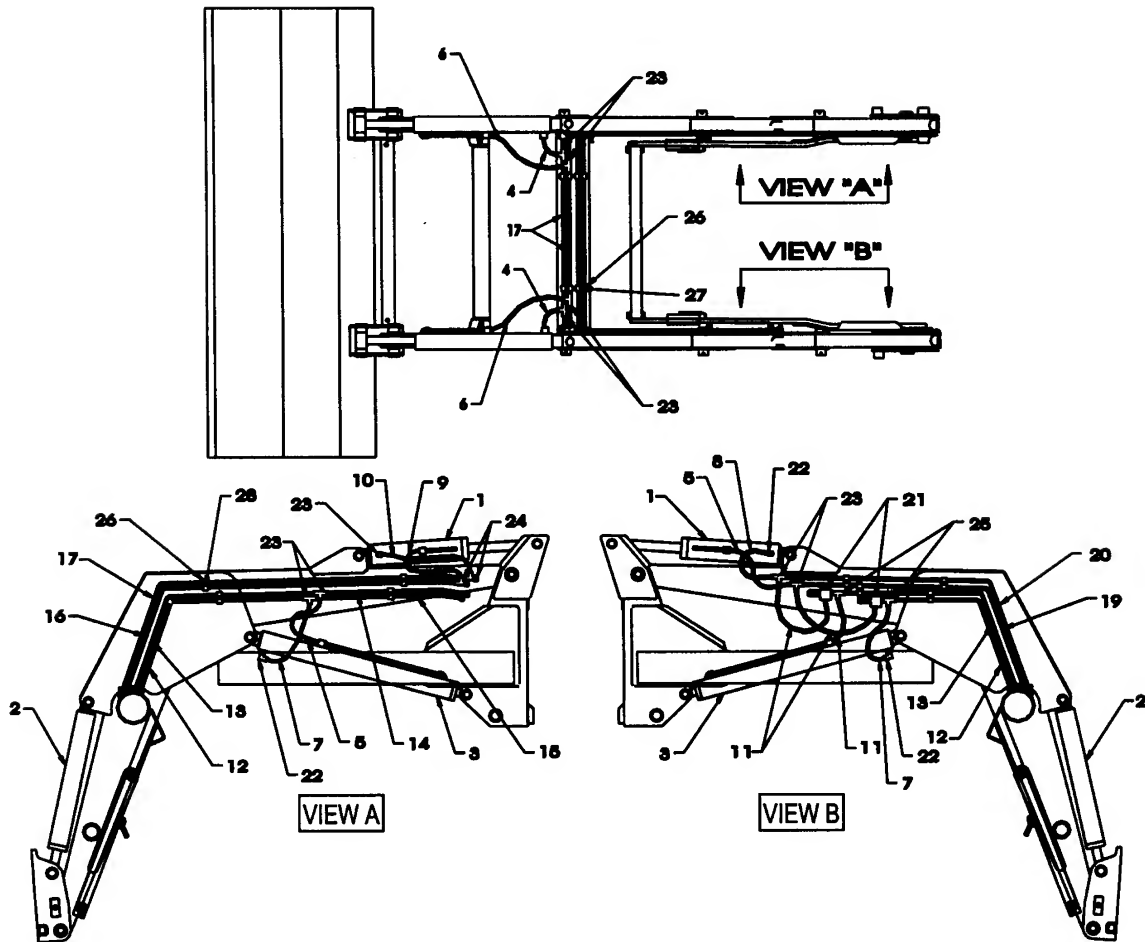


595, S595

Plumbing Parts Table

Item	Part No.	Description	Qty.
1	24458	2.5 Dia. X 20.63 Cyl. Assy. Bucket	2
2	24454	2.5 Dia. X 28.50 Cyl. Assy. Lift	2
3	812973	3/8 x 12" Hose 3/4 MORB x 3/4 SWFJIC	2
4	811754	3/8 x 18" Hose 3/4 MORB x 3/4 SWFJIC	2
5	812703	3/8 x 22" Hose 3/4 MORB x 3/4 SWFJIC	2
6	812947	3/8 x 22" Hose 3/4 SWFJIC x 3/4 SWFJIC	2
7	113222	Tubing - Lift Cyl. Bottom Raise	1
8	113223	Tubing - Lift Cyl. Top Drop	1
9	113031	Tubing - Lift Cyl. Comm. (23.0")	1
10	112937	Tubing - Lift Cyl. Comm. (31.0")	1
11	113224	Tubing - Bucket Cyl. Bottom Rollbk	1
12	113225	Tubing - Bucket Cyl. Top Dump	1
13	112837	Tubing - Bucket Cyl. Cross Tube	2
14	812128	Elbow 90 3/4 MJIC x 3/4 MJIC	4
15	811414	Elbow 90 3/4 MORB x 3/4 MJIC	2
16	812069	Tee 3/4 MJIC	4
17	11362	Clip Pipe Std.	10
18	81592	Nut Hex 0.375nc gr2 pl	4
19	81344	Nut Lock (Nylon) 0.375nc grB pl	6

595 HSL, S595 HSL **Hydraulic Plumbing Diagram**



595 HSL, S595 HSL

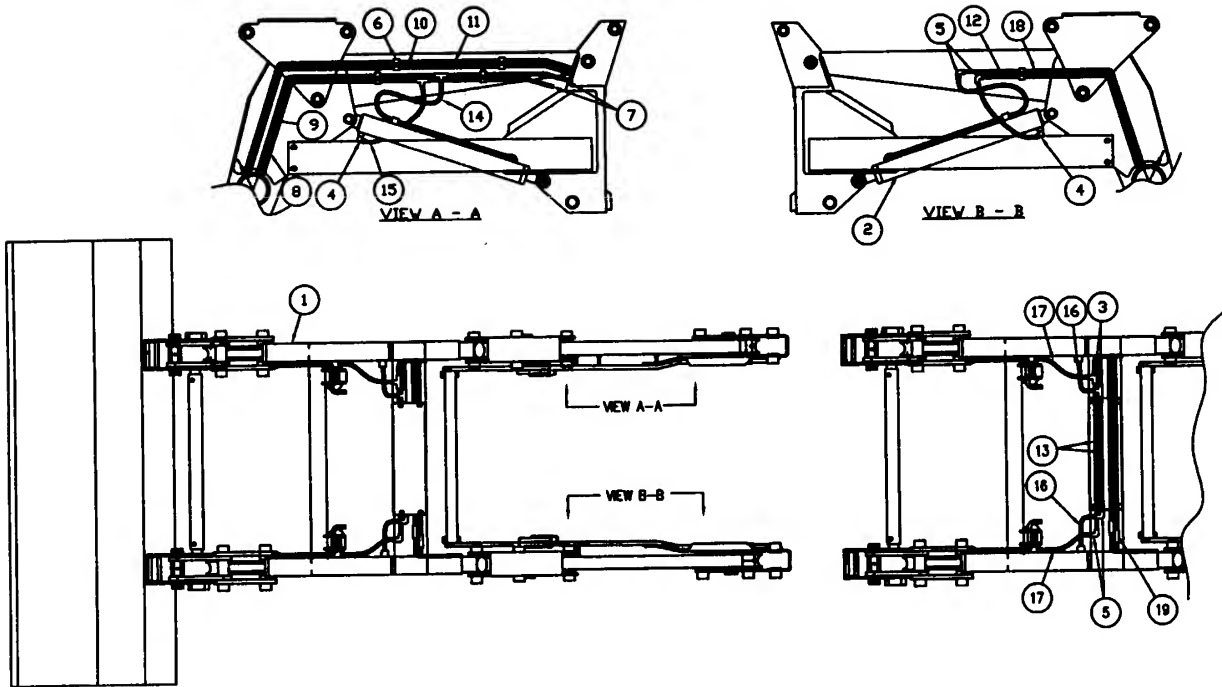
Hydraulic Plumbing Parts Table

Item	Part No.	Description	Qty.
1	24319	3.5 Dia. x 12.00 Cyl. Assy. Level	2
2	24407	3.0 Dia. x 20.63 Cyl. Assy. Bucket	2
3	24408	3.0 Dia. x 28.50 Cyl. Assy. Lift	2
4	812973	3/8 x 12" Hose 3/4 SWFJIC x 3/4 MORB	2
5	811754	3/8 x 18" Hose 3/4 SWFJIC x 3/4 MORB	2
6	812703	3/8 x 22" Hose 3/4 SWFJIC x 3/4 MORB	2
7	812947	3/8 x 22" Hose 3/4 SWFJIC x 3/4 SWFJIC	3
8	812697	3/8 x 24" Hose 3/4 SWFJIC x 3/4 SWFJIC	3
9	811434	3/8 x 30" Hose 3/4 SWFJIC x 3/4 MORB	1
10	811424	3/8 x 30" Hose 3/4 SWFJIC x 3/4 SWFJIC	1
11	811466	3/8 x 24" Hose 3/4 SWFJIC x 3/4 MORB	2
12	113222	Tubing - Lift Cyl. Bottom Raise	1
13	113223	Tubing - Lift Cyl. Top Drop	1
14	113031	Tubing - Lift Cyl. Comm. (23.0")	1
15	112937	Tubing - Lift Cyl. Comm. (31.0")	1
16	113224	Tubing - Bucket Cyl. Bottom Rollbk	1
17	113225	Tubing - Bucket Cyl. Top Dump	1
18	112837	Tubing - Bucket Cyl. Cross Tube	2
19	113220	Tubing - Bucket Cyl. Bott Ext HSL	1
20	113221	Tubing - Bucket Cyl. Top Ext HSL	1
21	23875	Valve Relief Assembly	2
22	811414	Elbow 90 3/4 MORB x 3/4 MJIC	4
23	812069	Tee 3/4 MJIC	8
24	812786	Tee 3/4 MJIC x 3/4 SWFJIC	2
25	812828	Tee 3/4 MORB x 3/4 MJIC x 3/4 MJIC	2
26	11362	Clip Pipe Std.	11
27	81592	Nut Hex 0.375nc gr2 pl	4
28	81344	Nut Lock (Nylon) 0.375nc grB pl	7

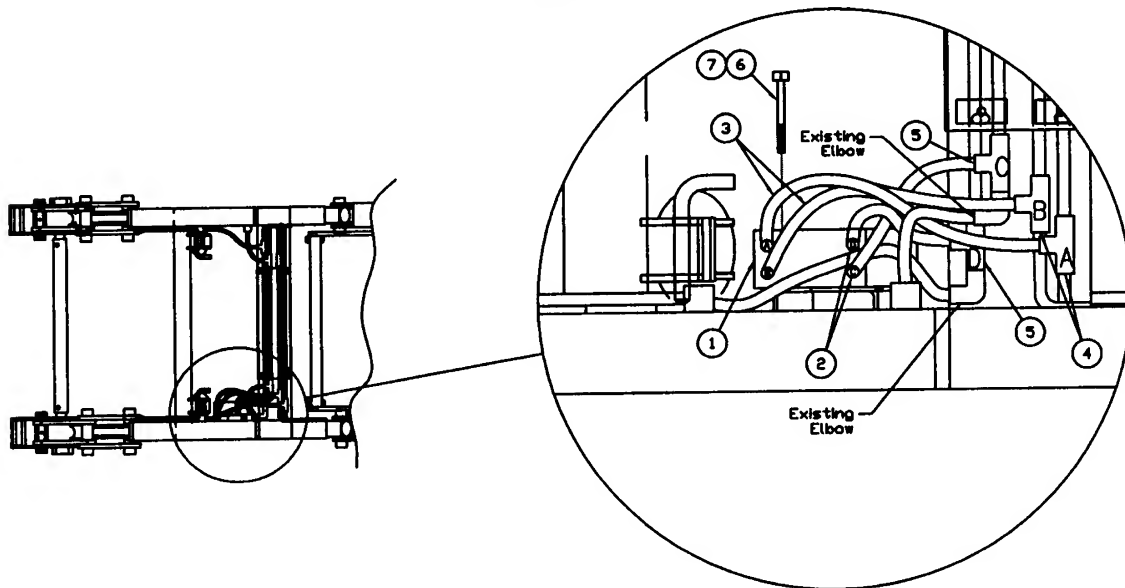
595 TSL, S595 TSL

Hydraulic Plumbing Diagram

2.5" and 3.0" Diameter Cylinders



3.0 Diameter Cylinder with Manifold Kit X2547



595 TSL, S595 TSL

Plumbing Parts Table

Item	Part No.	Description	3.0 Dia. Cyl. Quantity	2.5 Dia. Cyl. Quantity
1	24726	3.0 DIA x 22.0 Cyl. Assy. Bucket	2	-
1	24745	2.5 DIA x 11.0 Cyl. Assy. Bucket	-	2
2	24408	3.0 DIA x 28.5 Cyl. Assy. Lift	2	-
2	24454	2.5 DIA x 28.5 Cyl. Assy. Lift	-	2
3	812069	Tee 3/4-16MJIC X 3/4-16 MJIC	4	4
4	811414	Elbow 90° 3/4-16 MORB to 3/4 MJIC	2	2
5	812128	Elbow 90° 3/4 MJIC x 3/4 MJIC	4	4
6	11362	Pipe Clip	9	9
7	113031	Tubing Ext. Lift Cyl 23.0"	2	2
8	114114	Tubing Lift Cyl. (Bottom, Raise)	1	1
9	114115	Tubing Lift Cyl. Right (Top, Drop)	1	1
10	114116	Tubing Bucket Cyl. (Bottom, Dump)	1	1
11	114117	Tubing Bucket Cyl. (Top, Rollback)	1	1
12	114118	Tubing Lift Cyl. Left (Top, Drop)	1	1
13	112837	Tubing Cross Tube	2	2
14	811754	Hose 3/8 X 18 3/4-16 MORB X 3/4-16 SWJIC	2	2
15	812697	Hose 3/8 X 24 3/4-16 SWFJIC X 3/4-16 SWFJIC	2	2
16	114605	Hose 3/8 X 24 3/4-16 MORB X 3/4-16 SWFJIC	2	2
17	811434	Hose 3/8 X 30 3/4-16 MORB X 3/4-16 SWFJIC	2	2
18	114174	Tubing Lift Cylinder Left (Bottom, Raise)	1	1
19	886704	Adaptor Straight 3/4 MJIC x 3/4 MJIC	2	2

Parts List for X2547 TSL Manifold Kit*

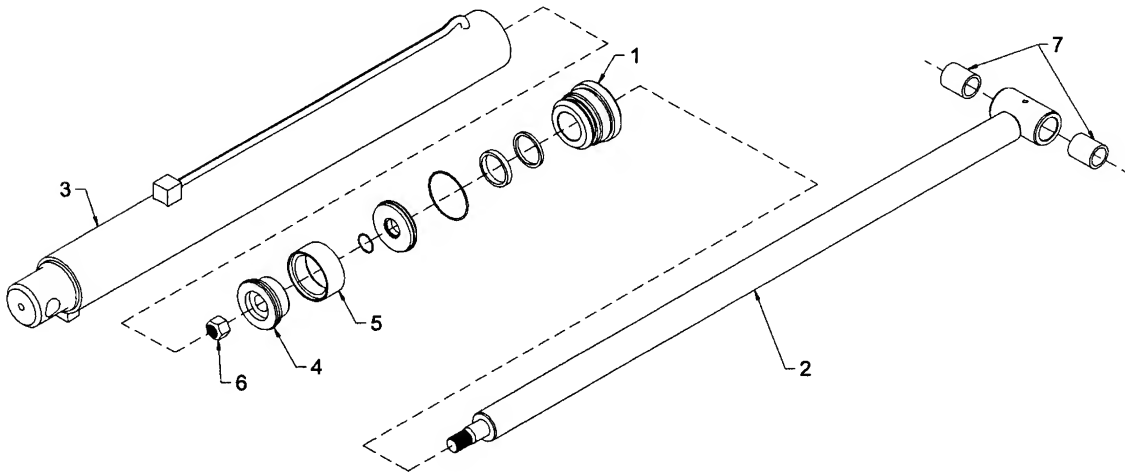
Item	Part No.	Description	Qty.
1	24750	TSL Manifold	1
2	114605	Hose 3/8 x 24 3/4-16 MORB x 3/4-16 SWFJIC	2
3	811434	Hose 3/8 x 30 3/4-16 MORB x 3/4-16 SWFJIC	2
4	812069	Tee 3/4 MJIC X 3/4 MJIC	2
5	812786	Tee 3/4 MJIC X RUN 3/4 SWFJIC	2
6	812052	Bolt Hex 0.250nc x 3.00 gr5 pl	2
7	81922	Nut Lock (Nylon) 0.25nc grbpl	2

* Required only if cartridge valve kit X2264 not purchased.

595, S595, 595HSL, S595HSL, 595TSL, S595TSL Hydraulic Cylinder Assembly

	Bucket Cylinders	Bucket Cylinders	TSL Bucket Cylinders	TSL Bucket Cylinders	Lift Cylinders	Lift Cylinders	Levelin Cylinders
Diameter	2.50"	3.00"	2.50"	3.00"	2.50"	3.00"	3.50"
Length of Stroke	20.63"	20.63"	11.00"	22.00"	28.50"	28.50"	12.00"
Retracted Length	33.00"	33.00"	50.50"	47.50"	38.00"	38.00"	22.00"
Extended Length	53.63"	53.63"	61.50"	69.50"	66.50"	66.50"	34.00"
Cylinder Assembly No.	24458	24407	24745	24726	24454	24408	24319
Seal Kit No.	X1110	X1656	X1110	X1424	X1110	X1424	X1655
Shaft Diameter	1.50"	1.50"	1.50"	1.75"	1.50"	1.75"	1.75"

Item	Description	Part Number	Part Number	Part Number	Part Number	Part Number	Part Number	Part Number
1	Head Plate	24540	24656	24540	24606	24540	24606	24655
2	Shaft Weldment	113120	113120	114288	113928	113218	113123	112934
3	Cylinder Tube Weld't	24459	24409	24746	24727	24456	24413	24317
4	Piston Half (wide)	113217	112862	113217	112862	113217	112862	112940
5	Piston Half (narrow)	113216	112863	113216	112863	113216	112863	112941
6	Self-Locking Nut	813407	813407	813407	813407	813407	813407	813407
7	Shaft Bushing	113766	113766	113578	113578	113766	113766	113766



NOTES:

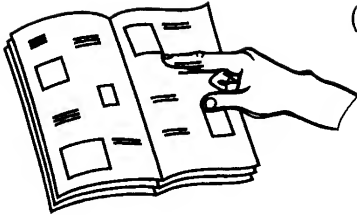
1. Bucket cylinder shown
2. All cylinder seals are contained in corresponding seal kit.



CAUTION: Maximum pressure – 2750 psi

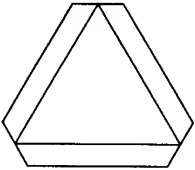
WARNING!

LOOK OUT FOR CHILDREN.
TEACH YOUR CHILDREN SAFETY.
(INFORM THEM OF DANGERS AROUND MACHINES)



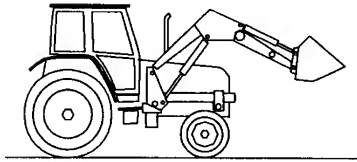
MANUAL MUST BE READ AND
UNDERSTOOD BY OPERATOR.

TRANSPORT



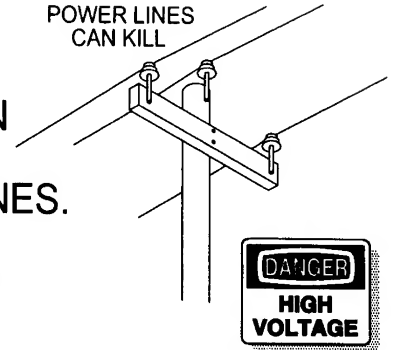
EMBLEMS MUST BE VISIBLE

ALWAYS MOVE EQUIPMENT IN
LOW OR DOWN POSITION
ESPECIALLY AROUND POWER LINES.



NEVER LEAVE EQUIPMENT IN
RAISED POSITION.

POWER LINES
CAN KILL



SERVICE

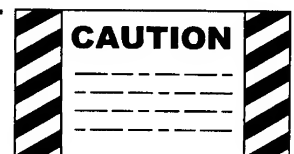
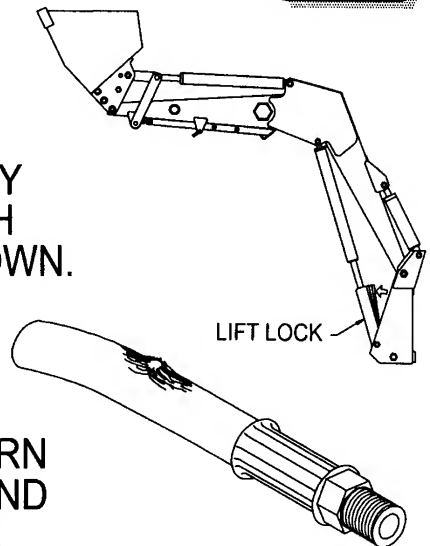
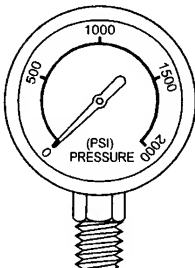
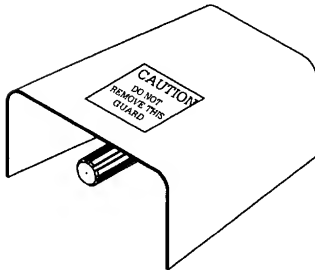
SERVICE EQUIPMENT ONLY
WHEN STOPPED AND WITH
LIFT LOCKS IN PLACE AS SHOWN.

KEEP ALL GUARDS AND
SHIELDS IN PLACE.

REPLACE DAMAGED OR WORN
PARTS. FRAYED CABLES AND
HOSES ARE DANGEROUS.

DO NOT CHANGE FACTORY SETTINGS.

KEEP DECALS CLEAN AND LEGIBLE.
(REPLACEMENTS NORMALLY AVAILABLE)



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